



PHYS 1303 083 – Stars & Galaxies Online

Course Syllabus: Summer II 2026

“Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed.”

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Weekday	Office Hours
Monday	Online
Tuesday	Online
Wednesday	Online
Thursday	Online
Friday	Online

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description:

This course focuses on the history, development, and modern use of astronomy. It covers solar, galactic, and universal aspects of astronomy including stellar evolution, black holes, and current cosmological concepts. Three hours college credit.

Prerequisite(s): TSI Complete Status

Student Learning Outcomes:

- 1303.1. Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry used in modern astrophysics.
- 1303.2. Communicate observations and interpretations clearly through written communication.
- 1303.3. Use basic laws of astronomy to solve assigned tasks.
- 1303.4. Translate, interpret, and extrapolate scientific theory governing the formation and evolution of stars.
- 1303.5. Translate, interpret, and extrapolate scientific theory governing the formation and evolution of galaxies and the universe.
- 1303.6. Use simple astronomy laboratory techniques to collect, manipulate, analyze, and draw conclusions from data representing physical phenomenon while working individually and in teams.

Evaluation/Grading Policy:

The breakdown of the course requirements is as follows:

%	Requirement
40%	Assignments in McGraw-Hill Connect
20%	Blackboard Discussions
40%	Exams, including the Final Exam

Semester grades will be earned as follows

Percentage	Letter Grade
90% and above	A
80 %–89%	B
70 %–79%	C
60%–69 %	D
59.9% and below	F

Using the Normal Style text insert full detailed grading policies

Required Instructional Materials:

Pathways to Astronomy, 6th edition by Scheider and Arny

Publisher: McGraw-Hill

ISBN Number: 9781260445107

Optional Instructional Materials:

None

Minimum Technology Requirements:

Computer Access and Internet Access, as well as a Scientific Calculator

Required Computer Literacy Skills:

Access to Blackboard and McGraw-Hill Connect to complete all assignments and tests.

Course Structure and Overview:

Students will be responsible for completing the reading assignments listed in the syllabus schedule to perform well on the homework, quizzes, and exams. Discussion assignments are made to assist in critical thinking and connecting individual facts to make a more complete concept.

Use of Proctorio:

To ensure all students are graded fairly and no one has the unfair advantage of cheating on quizzes and tests, Proctorio will be used. The browser add-on makes use of the webcam to flag any suspicious activity and report it to the instructor. You have the option to take the test at a proctored location. If you live near NTCC, you are welcome to use the Student Services Testing Center free of charge. You may use a testing center near your location, but you must handle the arrangements for the testing center and forward the necessary contact to the instructor for approval. If in-person proctoring is used, the instructor must approve of the proctoring a minimum of one week before the proctored test. Failure to arrange alternative proctoring early enough will result in Proctorio being required for the test.

Communications:

Blackboard Course Messages are the only recognized method of communication. Messages will be responded to within 24 hours IF SENT SUNDAY-THURSDAY. Any information that I send out will be done via Blackboard. I will NOT email sensitive information to a non-NTCC address.

Institutional/Course Policy:

Due to the short timeline of the course, late work will be accepted or denied on a case by case basis. Quizzes and Tests will not be accepted late without prior approval by the instructor. Students and instructor are expected to treat each other with respect in all communication (email, phone call, and discussion board).

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements:

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

Statement Regarding the Use of Artificial Intelligence (AI) Technology:

Employees and students shall be permitted to explore artificial intelligence (AI) and implement its use in and out of the classroom in accordance with policy and administrative regulations. The use of AI shall only be as a support tool to enhance student outcomes or as necessary to engage in research and shall never take the place of faculty, staff, and student decision-making. Any use of AI must comply with law, policy, and administrative regulations relating to student and employee privacy and data security. A student shall only use AI tools with faculty permission and shall be expected to produce original work and properly credit sources, including AI tools used in creating the work.

Example:

APA (7th edition)

OpenAI. (2026). ChatGPT (March 25 version) [Large language model]. <https://chat.openai.com/>

MLA (9th edition)

OpenAI. ChatGPT. 25 Mar. 2026, <https://chat.openai.com/>.

Employees or students who use AI tools to deceptively harm, bully, or harass others shall be disciplined in accordance with policy. [See DH, DIA series, FFD series, FFE, FLB, and the FM series] AI Use by Employees and Students. Northeast Texas Community College 225500 TECHNOLOGY RESOURCES CRB ARTIFICIAL INTELLIGENCE (LOCAL) DATE ISSUED: 12/8/2025 1 of 1 UPDATE 50 CRB(LOCAL)-AJC Adopted: 12/16/2025

NTCC Academic Honesty/Ethics Statement:

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodation for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodation as required to afford equal educational opportunity. It is the student's responsibility to request accommodation. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

Family Educational Rights and Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Topics and Units Covered

- **Test 1: Introduction to Stars and Galaxies**
 - Fundamental Astronomy
 - Unit 2 – Beyond the Solar System
 - Unit 3 – Astronomical Numbers
 - Unit 4 – Scientific Foundations of Astronomy
 - Unit 5 – The Night Sky (Extra Credit)
 - Unit 13 – Observing the Sky (Extra Credit)
 - Stars
 - Unit 21 – The Dual Nature of Light and Matter (Extra Credit)
 - Unit 22 – The Electromagnetic Spectrum
 - Unit 23 – Thermal Radiation
 - Unit 24 – Identifying Atoms by Their Spectra
 - Unit 56 – The Temperatures and Compositions of Stars
 - Unit 59 – The H-R Diagram
 - Milky Way
 - Unit 14 – Astronomical Motion: Inertia, Mass, and Force
 - Unit 15 – Force, Acceleration, and Interaction
 - Unit 16 – The Universal Law of Gravity
 - Unit 71 – Discovering the Milky Way
 - Unit 72 – Stars of the Milky Way
 - Unit 73 – Gas and Dust in the Milky Way
 - Unit 74 – Mass and Motions in the Milky Way
- **Test 2: What We Know About Stars**
 - The Sun
 - Unit 51 – The Sun, Our Star
 - Unit 52 – The Sun's Source of Power
 - Unit 53 – Solar Activity
 - Astronomy Physics
 - Unit 28 – Detecting Light (Extra Credit)
 - Unit 29 – Collecting Light (Extra Credit)
 - Unit 58 – The Sizes of Stars
 - Unit 57 – The Masses of Orbiting Stars
 - Unit 30 – Focusing Light (Extra Credit)
 - Astronomy Observations
 - Unit 31 – Telescope Resolution (Extra Credit)
 - Unit 32 – Earth's Atmosphere and Space Observatories (Extra Credit)
 - Unit 33 – Amateur Astronomy
 - Unit 54 – Surveying the Stars
 - Unit 55 – The Luminosities of Stars
 - Necessary Physics
 - Unit 17 – Measuring a Body's Mass Using Orbital Motion
 - Unit 25 – The Doppler Shift

- **Test 3: Star Formation Theory**
 - Star 'Life'
 - Unit 20 – Conservation Laws (Extra Credit)
 - Unit 60 – Overview of Stellar Evolution
 - Unit 61 – Star Formation
 - Unit 62 – Main-Sequence Stars
 - Unit 63 – Giant Stars
 - Unit 64 – Variable Stars
 - Unit 65 – Mass Loss and Death of Low-Mass Stars
 - Unit 66 – Exploding White Dwarfs
 - Unit 67 – Old Age and Death of Massive Stars
 - Unit 68 – Neutron Stars
 - Unit 69 – Black Holes
 - Unit 70 – Star Clusters
- **Test 4: Galaxy-scale Astronomy**
 - Other Galaxies
 - Unit 26 – Special Relativity
 - Unit 27 – General Relativity
 - Unit 75 – A Universe of Galaxies
 - Unit 76 – Types of Galaxies
 - Unit 77 – Galaxy Clustering
 - Unit 78 – Active Galactic Nuclei
 - Cosmology
 - Unit 79 – Dark Matter
 - Unit 80 – Cosmology
 - Unit 81 – The Edges of the Universe
 - Unit 82 – The Curvature and Expansion of Universes
 - Unit 83 – The Beginnings of the Universe
 - Unit 84 – Dark Energy and the Fate of the Universe
 - Aliens
 - Unit 85 – Astrobiology
 - Unit 86 – The Search for Life Elsewhere

Tentative Course Schedule:

Timing	Reading	Discussion	Assignments
Week 1	Units 2-4, 22-24, 56, 59, 14-16, 71-73, 74	• Introductions • The Birth of Stars and the Discovery of Planets Outside the Solar System	• <u>Fundamental Astronomy</u> ○ Unit 2 – Beyond the Solar System ○ Unit 3 – Astronomical Numbers ○ Unit 4 – Scientific Foundations of Astronomy ○ Unit 5 – The Night Sky (Extra Credit) ○ Unit 13 – Observing the Sky (Extra Credit) • <u>Stars</u> ○ Unit 21 – The Dual Nature of Light and Matter (Extra Credit) ○ Unit 22 – The Electromagnetic Spectrum ○ Unit 23 – Thermal Radiation ○ Unit 24 – Identifying Atoms by Their Spectra ○ Unit 56 – The Temperatures and Compositions of Stars ○ Unit 59 – The H-R Diagram • <u>Milky Way</u> ○ Unit 14 – Astronomical Motion: Inertia, Mass, and Force ○ Unit 15 – Force, Acceleration, and Interaction ○ Unit 16 – The Universal Law of Gravity ○ Unit 71 – Discovering the Milky Way ○ Unit 72 – Stars of the Milky Way ○ Unit 73 – Gas and Dust in the Milky Way ○ Unit 74 – Mass and Motions in the Milky Way • Test 1

Week 2	Units, 51-53, 58, 57, 33, 54, 55, 44, 17, 25	• ‘Discovery’ of the Milky Way Galaxy	• <u>The Sun</u> ○ Unit 51 – The Sun, Our Star ○ Unit 52 – The Sun’s Source of Power ○ Unit 53 – Solar Activity • <u>Astronomy Physics</u> ○ Unit 28 – Detecting Light (Extra Credit) ○ Unit 29 – Collecting Light (Extra Credit) ○ Unit 58 – The Sizes of Stars ○ Unit 57 – The Masses of Orbiting Stars ○ Unit 30 – Focusing Light (Extra Credit) • <u>Astronomy Observations</u> ○ Unit 31 – Telescope Resolution (Extra Credit) ○ Unit 32 – Earth’s Atmosphere and Space Observatories (Extra Credit) ○ Unit 33 – Amateur Astronomy ○ Unit 54 – Surveying the Stars ○ Unit 55 – The Luminosities of Stars • <u>Necessary Physics</u> ○ Unit 17 – Measuring a Body’s Mass Using Orbital Motion ○ Unit 25 – The Doppler Shift • Test 2 (open 4/16 – 4/20)
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Week 3	Units 20, 60 – 70,	• A Stellar Census	• <u>Star ‘Life’</u> ○ Unit 20 – Conservation Laws (Extra Credit) ○ Unit 60 – Overview of Stellar Evolution ○ Unit 61 – Star Formation ○ Unit 62 – Main-Sequence Stars ○ Unit 63 – Giant Stars ○ Unit 64 – Variable Stars ○ Unit 65 – Mass Loss and Death of Low-Mass Stars ○ Unit 66 – Exploding White Dwarfs ○ Unit 67 – Old Age and Death of Massive Stars ○ Unit 68 – Neutron Stars ○ Unit 69 – Black Holes ○ Unit 70 – Star Clusters • Test 3
Week 4	Units 26, 27, 75-86	• The Sun	• <u>Other Galaxies</u> ○ Unit 26 – Special Relativity ○ Unit 27 – General Relativity ○ Unit 75 – A Universe of Galaxies ○ Unit 76 – Types of Galaxies ○ Unit 77 – Galaxy Clustering ○ Unit 78 – Active Galactic Nuclei • <u>Cosmology</u> ○ Unit 79 – Dark Matter ○ Unit 80 – Cosmology ○ Unit 81 – The Edges of the Universe ○ Unit 82 – The Curvature and Expansion of Universes ○ Unit 83 – The Beginnings of the Universe ○ Unit 84 – Dark Energy and the Fate of the Universe • <u>Aliens</u> ○ Unit 85 – Astrobiology ○ Unit 86 – The Search for Life Elsewhere ○ Test 4 (open 5/7 – 5/12)

Week 5		•	• Final Exam (open 5/12 – 5/14) ○ Extra Credit will close this week
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